The Impact of Multimodal Other-Race Exposure on the Development of the Other-Race Effect in Infancy

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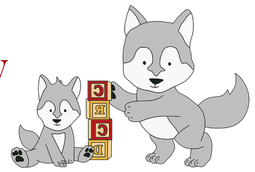

Abstract

This study was designed to explore how audiovisual exposure influences processing of own- and other-race faces in infancy. Multimodal stimuli have been shown to elicit greater attention and processing in infants compared to unimodal stimuli (Bahrick & Lickliter, 2000; 2002). Infants were recruited to participate in a behavioral study in which they viewed short video clips of South Asian women reciting a children's story with either audiovisual or visual-only stimulation. Following familiarization to these videos, visual-paired comparisons were used to assess face processing.

Background

The other-race effect (ORE) is a phenomenon that describes our preference for and superior processing of faces that belong to our own race (Meissner & Brigham, 2001). It begins to develop early in life as infants show preferential looking and greater processing of faces that belong to their own race (Kelly et al., 2007). However, stimuli from much of the previous research have been static and homogenous. Our study aims to address this issue by utilizing dynamic stimuli that represent a minority population within the United States to expand the lens through which we learn about face processing in infancy. The primary goal of the current research project is to investigate how exposure to audiovisual other-race face stimuli impacts the presentation of the ORE, as evidenced by infants' attention to and processing of other-race faces following this short exposure.

Objectives

1. Investigate whether multimodal, audiovisual face exposure prompts deeper processing of own- and other-race faces.

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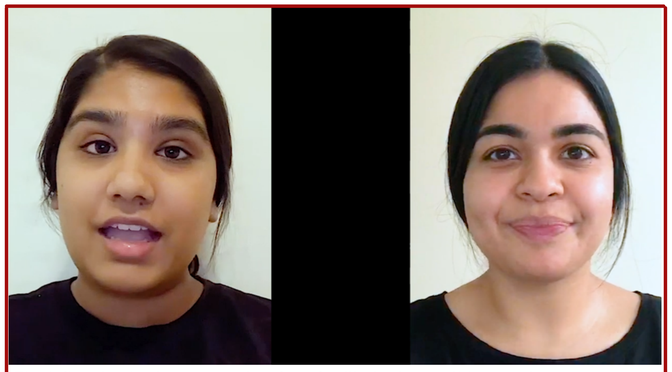


Fig. 1. Sample stimulus presentations from familiarization condition. The familiarization condition lasted 30 s in which side-by-side multimodal videos of women of South Asian descent recited children's stories in an infant directed manner. One video matched the soundtrack (i.e., familiar-synchronous), while the second video did not (i.e., familiar-asynchronous).

Fig. 2. Attention grabber. Dynamic images used to orient child to screen.

Fig. 3. Sample stimulus presentation from experimental condition. There were three paired comparisons of novel same race and multimodal other race, novel same race and unimodal other race, and familiar other race from top to bottom, respectively. Each comparison lasted approximately 7.5 s.

Methods

Participants

- Eleven 9-month-old infants (8 male, 3 female)
  - 3 own-race group
  - 8 other-race group

Procedure

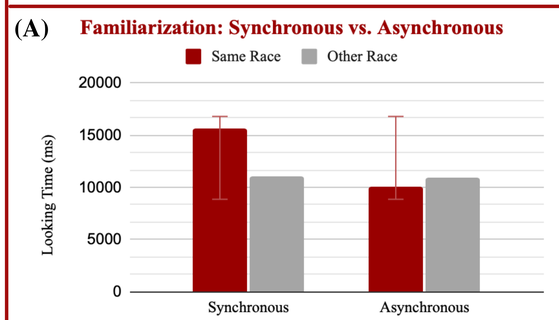
- All infants participated in an experimental condition including familiarization and visual paired comparisons,
  - *Familiarization*: side by side videos of South Asian females speaking, audio matched one video only (30 s)
  - *Visual Paired Comparisons:* static photographs of same- and other-race faces (7 s) including:
    - photo of synchronous familiarized face beside a novel face
    - photo of asynchronous familiarized face beside a novel face
    - photo of both familiarized faces

Analysis

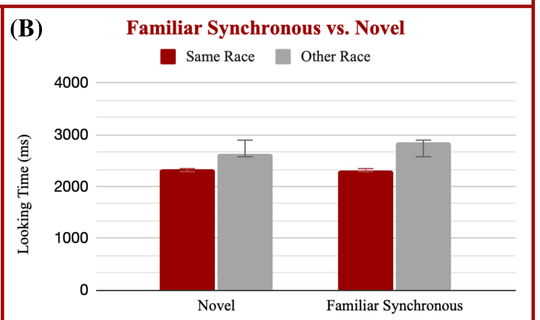
- Looking directions were determined by utilizing the DataVyu program
  - Viewed each video frame by frame and coded onset and offset times for left, right, and no looking

Results

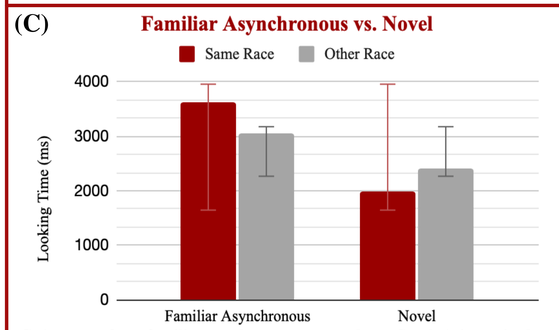
The preliminary results indicate that there are no significant differences in looking times between the same-race and other-race groups. Infants who identified as South Asian did not show differences in looking times compared to their non-South Asian counterparts. There were no differences in looking time to the familiar-synchronous versus the familiar-asynchronous conditions.



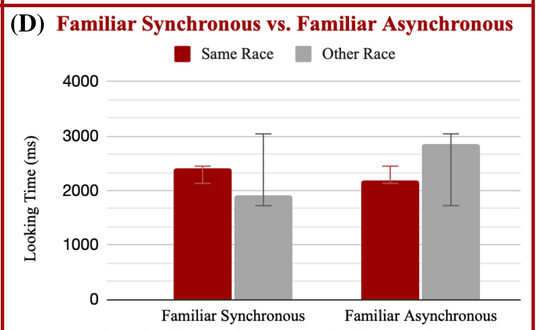
A. Average data from familiarization stimuli. Both same- and other-race babies showed slight preferences in looking at the synchronous faces. It is interesting that same-race infants are showing a greater bias to the synchronous presentation than other-race infants.



B. Average data from familiar-asynchronous vs. novel non-South Asian stimuli. Both same- and other-race babies showed slight preferences in looking at the familiar-asynchronous stimuli compared to the novel non-South Asian stimuli.



C. Averages from familiar-synchronous vs. novel non-South Asian paired comparison. Both same- and other-race infants showed increased looking times to the familiar asynchronous face compared to the novel face. South Asian babies had greater looking times towards the familiar asynchronous face and smaller looking times towards the novel face compared to their non-South Asian counterparts.



D. Averages from familiar-synchronous vs. familiar asynchronous paired comparison. South Asian infants showed slightly longer total looking times to the familiar synchronous face. Non-South Asian babies had a larger difference, with a preference to look at the familiar asynchronous-compared to the familiar synchronous face.

Discussion

Limitations due to small sample size likely contributed to non-significant results in our statistical analyses. The preliminary results indicate that infants had not fully processed the familiarized faces and did not discriminate them from one another or from the novel faces. It was interesting to see that own-race infants' attention may be recruited to the audiovisual-synchronous face more substantially during familiarization than other-race infants. We will continue to collect data for this study in hopes of increasing the strength of the study's results and to further investigate whether audiovisual face presentation is more salient to own-race than other-race infants. Additionally, a control group, that will not be exposed to any auditory information, will be added to better understand the effects that multimodal stimuli have on the presentation of the other-race effect in infancy.

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